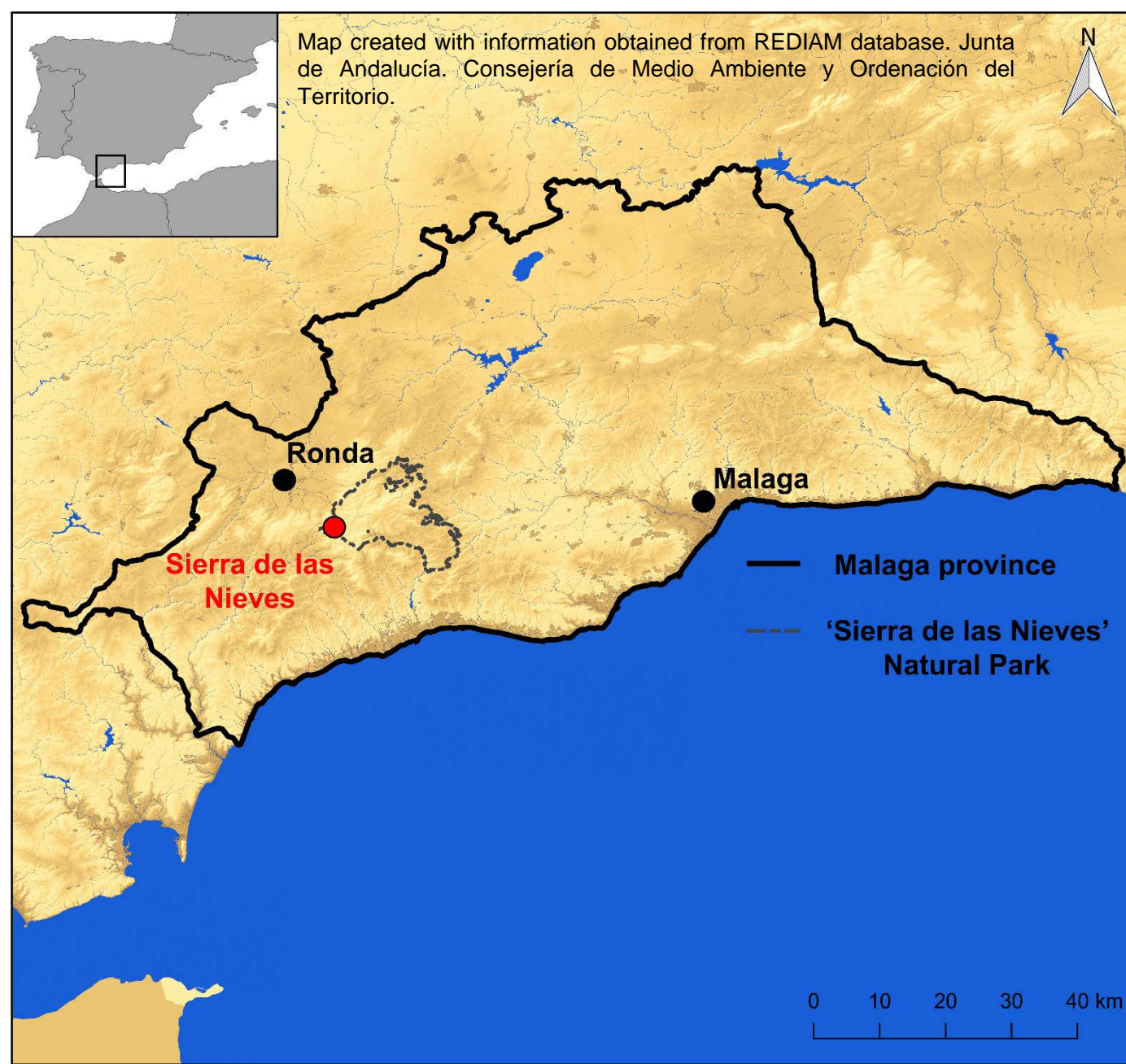


Preliminary study of the atmospheric pollen in 'Sierra de las Nieves' Natural Park (Southern Spain)

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Situation of Malaga province in the Iberian Peninsula, the sampling station (red) and nearby stations (black).

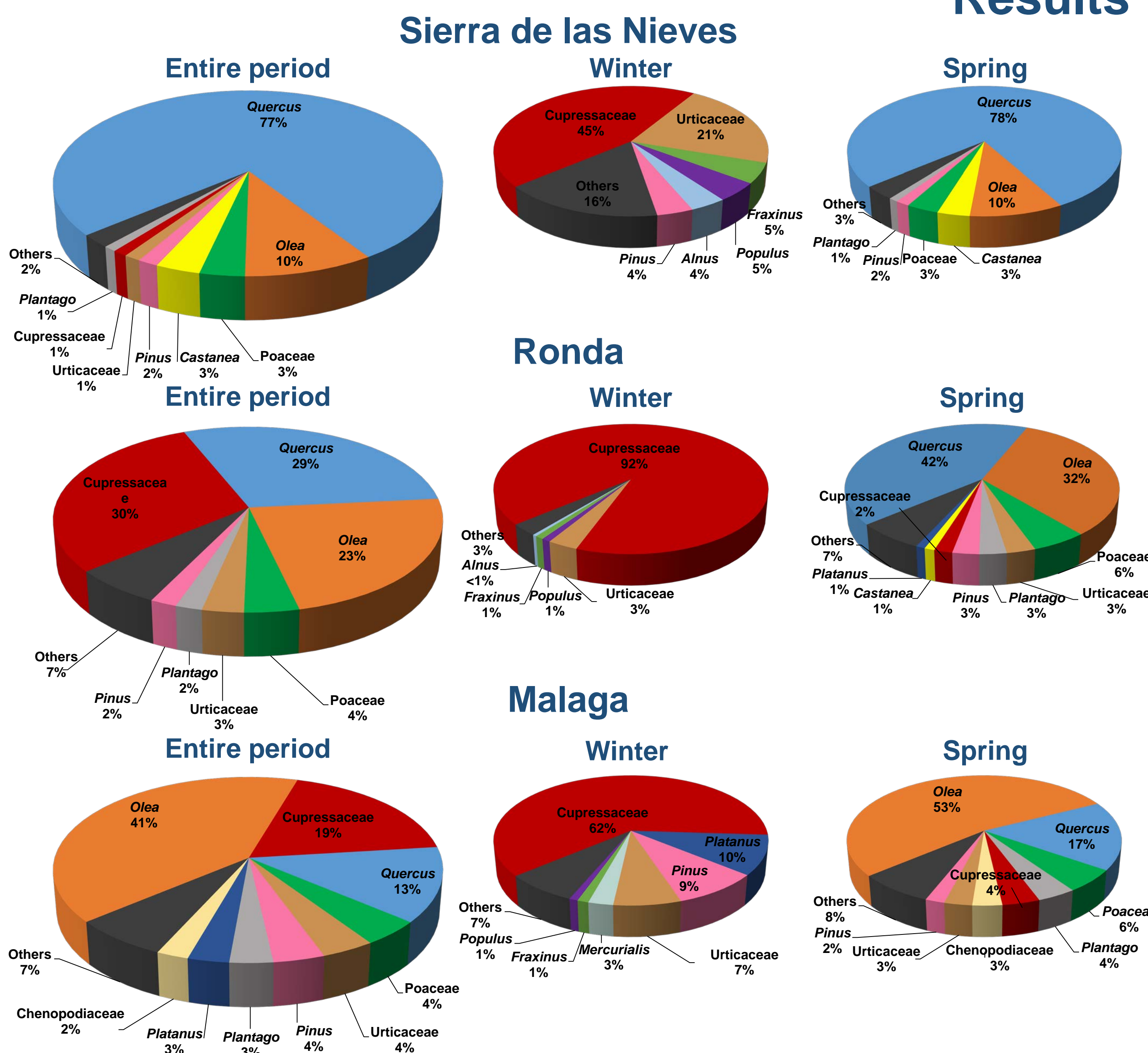
Introduction

'Sierra de las Nieves' is a Natural Park and a Biosphere Reserve located in Southern Spain. This protected area has a high diversity of ecosystems with abundant endangered species which have led it to be in ways to become a National Park. Some of those species have anemophilous pollination strategies such as *Abies pinsapo* Boiss. and *Quercus alpestris* Boiss. In January 2018, a pollen trap was installed inside this Natural Park in order to determinate the atmospheric pollen behaviour of the main taxa registered during winter and spring months, as well as compare the results with those obtained by other nearby sampling stations during the same period.

Material and Methods

The pollen samplings were made by means of a volumetric pollen trap (Hirst, 1952) placed at 'Las Conejeras' recreative area (36°39'N, 5°5'W, 1070m a.s.l.) inside the protected area of the Natural Park. The samples obtained were mounted and counted according to the methodology proposed by the Spanish Aerobiology Network (REA) (Galán *et al.*, 2007). A preliminary pollen calendar was constructed following the model proposed by Spieksma (1991), which transforms 10-days mean pollen concentrations into a series of classes according to Stix and Ferretti (1974) (2ⁿ). Mann-Whitney U-tests were elaborated with SPSS software to search for differences between the total pollen daily mean concentrations series of the different stations studied.

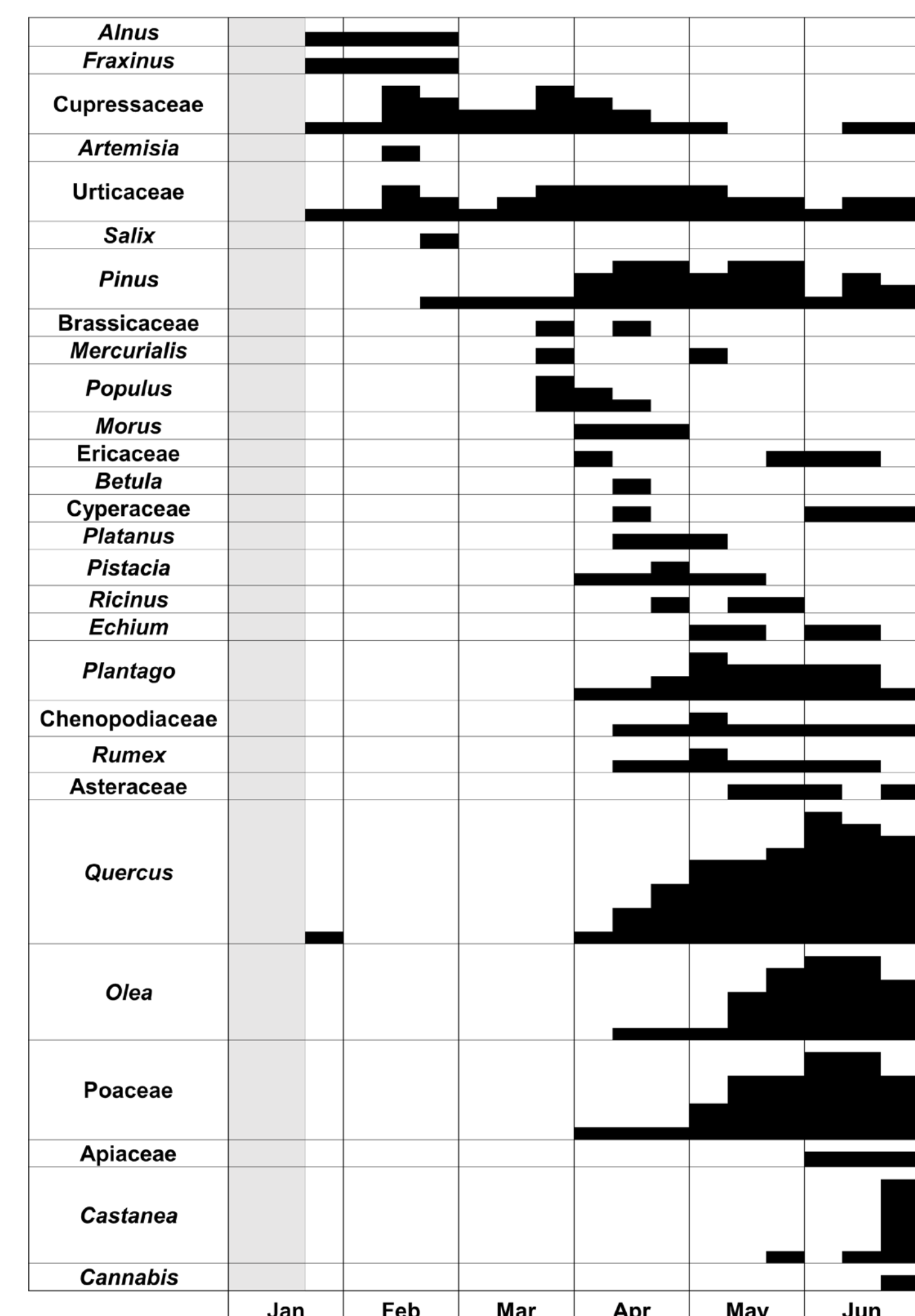
Results



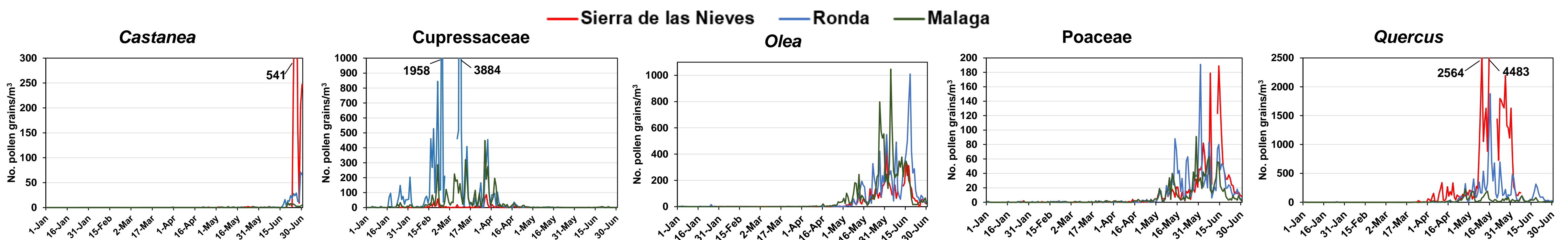
Percentages reached by the different pollen types in 'Sierra de las Nieves' during the entire period (January-June), winter (January-March) and spring (April-June) and its comparison with other nearby sampling stations of Malaga province.

	Entire period (Jan-Jun)	Winter (Jan-Mar)	Spring (Apr-Jun)
Sierra de las Nieves	58,170	1,094	57,362
Ronda	48,885	15,290	34,095
Malaga	28,381	7,134	21,476

Sum of daily mean concentrations of total pollen during the entire sampling period, winter and spring. Significant differences between the series of the three sampling stations have been found ($\alpha=0.05$)



Preliminary pollen calendar elaborated with the pollen register in Sierra de las Nieves during the study period. Grey: no sampled period (pollen trap installed on 24th January).



Daily concentrations of the most abundant pollen types in 'Sierra de las Nieves' during the study period and its comparison with other nearby sampling stations of Malaga province.

Conclusions

- For the first time an aerobiological study of the atmosphere of 'Sierra de las Nieves' Natural Park has been carried out. A total of 36 pollen types have been identified from January to June in the air of this Natural Park, being the most abundant types: *Quercus* (77%), *Olea* (10%), *Poaceae* (3%) and *Castanea* (3%). This order of abundance is different to the registered in Ronda and Malaga, in special for *Quercus* and *Castanea* pollen types.
- The total amount of pollen grains (sum of the daily mean concentrations) registered during the entire period of study has been 58,170, which is widely higher to the total registered in Ronda (48,885) and Malaga atmosphere (28,381).
- The highest amount and diversity of atmospheric pollen in the Natural Park is detected during spring months as well as in Ronda and Malaga. Nevertheless, the Natural Park pollen register during winter is much lower.
- In general, the start and maximum peak of the pollination period for the majority of the pollen types is delayed in Sierra de las Nieves comparing with Ronda and Malaga despite the general pollination delay observed in all the stations during this year.

References

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